



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/697,534

10/30/2003

Steve J. Shattil

CIPHY01

7591

Steve Shattil
4980 Meredith Way #201
Boulder, CO 80303

7590

06/22/2007

EXAMINER

KIM, KEVIN

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

06/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/697,534

Applicant(s)

SHATTIL, STEVE J.

Examiner

Kevin Y. Kim

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 3-6,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Wiegandt et al.

Claims 3,8

Wiegandt et al discloses in a carrier Interferometry (CI) transmitter:

a CI coder adapted to encode at least one data sequence (K^{th} bit) onto a CI code ($i\Delta\theta_k$) to produce at least one data-bearing code vector, and

a (OFDM) modulator adapted to modulate the at least one data-bearing code vector onto a plurality of subcarriers.

See Fig 2 (a) and (b), and page 661, first paragraph.

Claims 4,5.

OFDM modulators includes an IFFT which reads on “an invertible transform module.”

Claim 6.

Wiegandt et al discloses that the CI coder is adapted to scramble CI codes generated by the CI coder. See page 661, second paragraph.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7,9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiegandt et al in view of Steer et al (US 2003/0103445).

Claims 7 and 9.

Wiegandt discloses all the subject matter claimed except that at least one of the modulator and the CI coder is adapted to dynamically allocate subcarriers for at least one communication link.

Steer et al teaches dynamically allocating the subcarriers of OFDM to better accommodate the traffic requirements. See paragraph [0047].

Thus, it would have been obvious to one skilled in the art at the time the invention was made to adapt the OFDM modulator to dynamically allocate subcarriers for at least one communication link for the purpose of better accommodating the traffic requirements, as taught by Steer et al.

Claim 10.

Wiegandt et al is silent on whether the CI coding is non-uniform across the plurality of subcarriers. However, the CI coding is performed to ensure separability between bit k

Art Unit: 2611

and (N-1) other bits, non-uniform coding would have been obvious to increase separability between transmitted bits.

Claims 11,12,13,14,16

Although Wiegandt et al does not describe a CI receiver, an OFDM demodulator and a CI decoder corresponding to the OFDM modulator and CI coder would have been obvious by reversing the modulation and coding processes, as is commonly done in a communication system.

Claims 15 and 17.

An automatic frequency control (AFC) and interference cancellation are well known in the art to compensate carrier frequency variations and remove interference during transmission.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 18-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claimed invention is drawn to a signal constructed in a particular manner. A signal does not fall into any category of statutory subject matter.

Art Unit: 2611

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

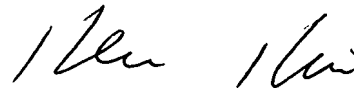
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 20, 2007

AU 2611

KEVIN KIM
PRIMARY PATENT EXAMINER

Handwritten signature of Kevin Kim, consisting of two stylized, cursive-like marks.